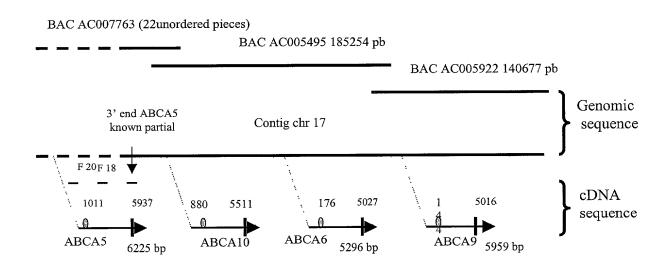
Figure 1 : Cluster ABCA 5,6,9,10 chromosome 17



- codon initiation ATG
- Codon stop

Figure 2

DIALIGN 2.0

Aligned :	sequenc		leng	jth: ======			
2) Al 3) Al 4) Al	BC-A-1- BC-A-5- BC-A-6- BC-A-8- BC-A-9-	2.pep 3.pep 1.pep		2261 1641 1617 1581 1624			
		IALIGN 1					
ABC-A-1-: ABC-A-5-: ABC-A-6-: ABC-A-8-: ABC-A-9-:	2. 1 3. 1 1. 1	mstal MNM mrI MSI	REVGV KQKSV CRKISV CRRMSV	WRQTRTLLLK YQQTKALLCK CQQTWALLCK GQQTWALLCK ********	NYLIKCRTKK NFLKKWRMKR NFLKKWRMKR NCLKKWRMKR	QLLLEVAWPL SSVQEILFPL ESLLEWGLSI ESLMEWLNSL QTLLEWLFSF ***********************************	FFLFWLILIS LLGLCIalfs LLLLCLyiyp LLVLFLYLff
ABC-A-1- ABC-A-5- ABC-A-6- ABC-A-8- ABC-A-9-	2. 51 3. 49 1. 49	mmhpr ssmrr hs-H(snlH(kk-YE vqf vvnDFS	EVPNI SLLTM QMSSM		icnannpcfr	E pgmapqn D
ABC-A-1-: ABC-A-5-: ABC-A-6-: ABC-A-8-: ABC-A-9-:	2. 66 3. 64 1. 64	LNPMI LGRVI LGRVI LGRVI	OKFTLS OKFNSS OTFNES	NL SL RF NY		dmrkvlrtlq	
ABC-A-1-1 ABC-A-5-1 ABC-A-6-1 ABC-A-8-1 ABC-A-9-1	2. 78 3. 76 1. 76					radvilhkvf	
ABC-A-1- ABC-A-5- ABC-A-6- ABC-A-8- ABC-A-9-	2. 78 3. 76 1. 76		skseem			aaervlrsnm	

ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	244 78 76 76 77		laeatktllh			
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	294 78 76 76 77		vsrivcghpe			
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	344 78 76 76 77		ycndlmknle		IL NV SV VI	GYTPVTNITS VYTPISNLTQ VYTPVTNTTQ
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	394 90 88 88 89	SIMQKVSTdh QIMNKTALAP QIMNKVASTP EIMNKVASAP	qelavfhdle lpdviiteeY LLKGtsVIGA FLAGKEVLGL FLKGRTIMGW *******	TNE		
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	444 113 111 111 112		dgldwtaQDI KEM THM ESI KSM	LTSSLSKPSN DEILLENLPY KEFTANYPEE DELDLNYSID	FVGVVFKDSM AMGIIFNETF IVRVTFTNTY	SYELRFFPdm SYKLIFFQGY SYHLKFLLGH SYHLKFSWGH
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	494 146 144 144 145	ipvssiymds NSPLWKEE GMPAKKEHKD RIPMMKEHRD	cvnlnklepi ragcsk FSAHCWDGYG HTAHCYETNE HSAHCQAVNE	SC EFSC dvyC KMKC		
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.			x ykirmdidnv		·	EAAQYWSSGF TLTKYWNRGF EVSVFWKEGF

ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	594 174 176 178 179	TVLQASIDAA VALQTAINTA VALQAAINAA VAFQAAINAA	IIRVLTGtek IIQLKTNVSL IIEITTNHPV IIEITTNHSV IIEIATNHSV ************************************	WKELESTRAV MEELMSVTAI MEELMSVTGR MEQLMSVTGV ********	IMGETAVVEI TMKTLPFITK nMKMHSFIGQ HMKILPFVAQ	DTFPRGVILI NLLHNEMFIL SGVITDLYLF GGVATDFFIF
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	638 224 226 228 229	YLVIAFSPFG FFLLHFSPLV SCIISFSSFI	wiysvaviik YFLAIH YFISLN YYASVN YYVSVN	-IVAEKEKKI VTKERKKS VTRERKRM VTQERQYI	KEFLKIMGLH KNLMKMMGLQ KALMTMMGLR TSLMTMMGLR ********	DTAFWLSWVL DSAFWLSWGL DSAFWLSWGL ESAFWLSWGL ********
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	688 269 270 272 273	LYTSLIFLMS IYAGFIFIIS LYAGFIFIMA MYAGFILIMA	GLLVVILKLG LLMAVIATAS IFITIIITFT LFLALVIRST TLMALIVKSA ************	1LFPQSSSIV QIIVMTGFMV QFIILSGFMV QIVVLTGFVM	IFLLFFLYGL IFILFFLYGL VFSLFLLYGL VFTLFLLYGL	SSVFFALMLT SLVALVFLMS SLVALAFLMS SLITLAFLMS
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	738 319 320 322 323	PLFKKSKHVG VLLKKAVLTN TLVKKSFLTG	LVVFLLIV	afgfiglmiI FWGCLGFT-V FWGCLGFT-S FWGILGFP-A	LIESFPKSLV FYEQLPSSLE LYRHLPASLE LYTHLPAFLE	WLFSPFCHCT WILNICSPFA WILSLLSPFA WTLCLLSPFA
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	367 369	FVIGIAQVMH FTTGMIQIIK FMLGMAQLLH FTVGMAQLIH	I LEDFNEGASF LDYNLNGVIF LDYDLNSNAF LDYDVNSNAH	SNLTA PDPSG PHPSD	GPYPLIITII DSYTMIATFS GSNLIVATNF NPYLIIATLF	MMLFDTFLYG MLTLNSIFYV MLLLDGLIYL MLAFDTCLYL MLVFDTLLYL
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	412 412 414	LLAVYLDQVI LLALYFDKII ALAIYFEKII VLTLYFDKII	PGEFGLRRSS PygderhySI PNEYGHRRPI PAEYGHRCSI	LYFLKPSYWS LFFLNSSSCI LFFLKSSFWS LFFLKSCFWI	KSKRNYEELS QHQRTNAKVI QHQRTDHVAI QHGRANHVVI	gsnqkrisei EGNVNGNisf EKEIDABHPS EDEMDADPSF ENETDSDPTP

ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	887 462 462 464 465	seiiEPVSSE DDYFEPVAPE HDSFEQAPPE NDCFEPVSPE	FVGKEAIRIS FQGKEAIRIR FQGKEAIRIR FCGKEAIRIK **********	vyrdgmkvav GIQKTYRKKG NVKKEYKGKS NVTKEYKGKP NLKKEYAGKC ************************************	ENVEALRNLS GKVEALKGLL DKIEALKDLV ERVEALKGVV ********	FDIYEGQITA FDIYEGQITA FDIYEGQITA FDIYEGQITA ************************************
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	931 512 512 514 515	LLGHSGTGKS ILGHSGAGKS ILGHSGAGKT ************************************	TLMNILCGLC SLLNILNGLS TLLNILSGLS TLLNILSGLS *********	PPTSGTAYIL PPSDGFASIY VPTEGSVTIY VPTKGSVTIY VPTSGSVTVY ***********************************	GHRVSEIDEM NKNLSEMQDL NNKLSEMADL NHTLSRMADI ************	FEARKMIGIC EEIRKITGVC ENLSKLTGVC ENISKFTGFC
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	979 562 562 564 565	PQLDIHFDVL PQFNVQFDIL PQSNVQFDFL PQSNVQFGFL *********	TVEENLSILA TVKENLSLFA TVRENLRLFA TVKENLRLFA	KIKGILPHEV ****** *****	iQEVQKVLLD EQEVQRILLE	LDMQTIKDNQ LDMQNIQDNL
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	1029 612 612 594 595	AKK-LSGGQK AKH-LSEGQK	RKLSLGIAVL RKLTFGITIL	GNPKDKEEKEVQTVVQ		laqnlsggqn
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.			ddpqVLLLDEIFLLDEILLLDE	PTAGMDPCSR PTTGLDPFSR PTAGLDPFSR PTAGLDPLSR *********	HIVWNLLKYR DQVWSLLRER HQVWNLLKER HRIWNLLKEG	RQGRTIILST KANRVTVFST RADHVILFST KTDRVILFST KSDRVILFST
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	671 671 633	HFMDEADILF QSMDEADILF QFMDEADILF QFIDEADILF ************************************	A DRKAVISQGN A DRKVIMSNGF A DRKVFLSQGF A DRKVFISNGF * ***********************************	1 LKCVGSSMFI 2 LKCAGSSMFI 3 LKCAGSSLFI	. KSKWGIGYRI . KRRWGLGYHI . KKKWGIGYHI . KKKWGIGYHI . ********** . ********** . *********	* ***** * * **

ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	1139 719 719 681 722		vsylkkedsv			ATESLSSLVK NPEQITSFIT VEENITSLVK
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	729 729 691		QNDQQLVYSL ENKEKLVYTL KSEGKLIYTL	PFKDMDKFSG PLERTNTFPD PLERTNKFPE PLERTNKFPE *******	LFSALDS LFSDLDK LYKDLDS LYRDLDR	HSNLGVISYG CSDQGVTGYD YPDLGIENYG
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	1239 776 776 738 779	VSMTTLEDVF ISMSTLNEVF VSMTTLNEVF VSITTLNEVF		QADYSVFTQQ QDfE ESDIAILGEV ESDIGIWGQL	PLEEEMDSKS QVEMIRDSES QAEKADDTER QTDGAKDIGS	FDEMEQSLLI LNEMELAHSS LVEMEQVLSS LVELEQVLSS
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	826 820 788	LSETKAS1 FSEMQTA LNKMRKT			VSTMSLWKQQ VSDMGLWRMQ IGGVALWRQQ ISGVALWRQQ	FVALLWKRLL MYTIAKFHFF VFAMARLRFL ICAIARVRLL VCAIAKVRFL ********
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	854 847 815	TLKRESKSVR KLKRQTKVLL KLKHERKALL KLKKERKSLW	SVLLLLLIFF TLLLVFGIAI ALLLILMAGF TILLLFGISF	TVQIEMELVH FPLIVENIIY CPLLVEYTMV	hsfknavvPI amlnekid-W KIYQNSYt-W ESYQKSY-PW	: lqpwmyneqy KLVPDLYFLK GEFKNELYFLS ELSPHLYFLA ELSPNTYFLS
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	904 896 864	PGDKP PGQLP				o cqageeewtt

ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	909 901 869				kikkmlpvcp	
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	909 901 869	HKYKTSLLLQ QEPRTSLLII HDPLTQLLII QDPLTHLLVI	NSADSDISDL NNTESNIEDF NKTGASIDDF NKTGSTIDNF	ISFFTSQNIM IKSLKHQNIL IQSVEHQNIA LHSLRRQNIA	KSLKNkiwvn VTMINdsdyv LEVDDFENRN LEVDAFGTRN IEVDAFGTRN ***********	svapHSAA GTDGLSYNGA GTDDPSYNGA GTDDPSYNGA
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	957 951 919	L I			sadrflnslg	-NVMHSEKDY -IVSGKQKDY -TVCCNEKNY
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	967 961 929	VFAAVFNSTM RFSVVCNTKR SFSLACNAKR RFSIACNTKR	VYSLPILVNI LHCFPILMNI LNCFPVLMDI LNCFPVLLDV	ISNYYLYHLN ISNGLLQMFN VSNGLLGMVK ISNGLLGIFN	qkgenpshyg VTETIQIwst HTQHIRIESS PSVHIRTERS SSEHIQTDRS ********	pffqeitdiv PFplshiglw TFLEngqdnp TFFEehmdye
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	1017 1011	fkielyfqaa tGLPDGSFFL igflayimFW yGYRSNTFFW	llgiivtamP FLVLCSIS	PYFAMEN PYITMGS PYIAMSS PYIAMSS	AE IS ID	ERVSKAKHLQ NHKIKAYTQL DYKKNAKSQL DYKNRARSQL DYKKKAHSQL ********
ABC-A-1-1 ABC-A-5-2 ABC-A-6-3 ABC-A-8-1 ABC-A-9-3	. 1056 . 1048 . 1016	KLSGLLPSAY WISGLYTSAY RISGLSPSAY RISGLYPSAY	WIGQAVVDIF WGQALVDVS WFGQALVDVS WFGQALVDVS	LFFIILILMIFFILILLLMYLYFLVFVFIYLYFLILLLMQ	GSLLAFHYGL LIFYIENMQY LMSYISNFED IMDYIFSPEE	Y-VSSTNLPV Yfytvkfl-A LLITSQIVFA MLLTIihiiq IIFIIqNLLI

ABC-A-1-1. 1738 ABC-A-5-2. 1105 ABC-A-6-3. 1098 ABC-A-8-1. 1066 ABC-A-9-3. 1107	ip-CAVGYSF QILCSIGYVS	SVILFTYIAS SLVFFIYMIS SLIFMTYVIS	FTFKKILNTK FIFRKRRKNS FIFRKGRKNS FIFRNGRKNS	EFWSFIYSVa GLWSFYFFfa GIWSFCFYV- GIWSFFFLI- *******	alcIAITEIT stimfsi VTVFSVA
ABC-A-1-1. 1788 ABC-A-5-2. 1155 ABC-A-6-3. 1145 ABC-A-8-1. 1111 ABC-A-9-3. 1153	FFMGYTIATI -TLINHFDLS GFAFSIFESD aTDLNEYGFL	LHYAFCIIIP ILITTMVLVP IPFIFTFLIP	IYPLLGCLIS SYTLLGfktf PATMIGCLFL PFTLIGSLFI	glidmvknqa FIKISwknvr levrdqehyr SSHLlfsslf FSEISpdsmd	knvdtynpwd efpeanfels seermdvqp-
ABC-A-1-1. 1838 ABC-A-5-2. 1205 ABC-A-6-3. 1194 ABC-A-8-1. 1160 ABC-A-9-3. 1203	rls-vAVISP atdFLVCFIP FLVFLIP YLALLIP	YLQCVLWIFL YFQTLLFVFV FLHFIIFLFT YLHFLIFLFI	LQYYEKKYGG LRCMELKCGK LRCLEWKFGK LRCLEMNCRK	vliqYR RSIRKDPFFR KRMRKDPVFR KSMRKDPVFR KLMRKDPVFR	nlstkskNRK ISPQSRDA ISPRSSDV ISPRSNAI
ABC-A-1-1. 1882 ABC-A-5-2. 1254 ABC-A-6-3. 1242 ABC-A-8-1. 1205 ABC-A-9-3. 1248	LPEPPDNEDE KPNPEEPIDE CQNPEEPEGE FPNPEEPEGE	DEDVKAERLK DEDIQTERIR DEDVQMERVR EEDIQMERMR	VKELMGCQCC TATALTTSIL TANALNSTNF TVNAMAVRDF	leikeltkiy EEKPSIMVSN DEKPVIIASC DEKPVIIASC DETPVIIASC ********	LHKEYDDKKD LHKEYAGQKK LRKEYAGKRK LRKEYAGKKK
ABC-A-1-1. 1922 ABC-A-5-2. 1304 ABC-A-6-3. 1292 ABC-A-8-1. 1255 ABC-A-9-3. 1298	FLLSRKVKKV SCFSKRKKKI GCFSKRKNKI NCFSKRKKTI	ATKYISFCVK AARNISFCVQ ATRNVSFCVK ATRNVSFCVK	KGEILGLLGP EGEILGLLGP KGEVLGLLGH KGEVIGLLGH **********************************	NGAGKSSTFK NGAGKSTIIN SGAGKSSSIR NGAGKSTSIK NGAGKSTTIK ***********************************	ILVGDIEPTS MISGITKPTA VITGDTKPTA MITGDTKPTA ************************************
ABC-A-1-1. 1968 ABC-A-5-2. 1354 ABC-A-6-3. 1342 ABC-A-8-1. 1305 ABC-A-9-3. 1348	GQVFLgdyss GEVELKGcss GOVLLKGSGG	etseddDSLK vLG GDALE GEPLG	CMGYCPQINE HLGYCPQENV FLGYCPQENV FLGYCPQENV ************************************	DE LWPDTTLQEH LWPMLTLREH LWPMLTVRQH LWPMLTVRQH . ********** . *********	VEFFALLRGV FEIYGAVKGM LEVYAAVKGL LEVYAAVKGL LEVYAAVKGL ************************************

ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	1404 1385 1350	SASDMKEVIS RKADARLAIA RKGDAEVAIT RKGDAMIAIT	RITHALDLKE RLVSAFKLHE RLVDALKLQD RLVDALKLQD	HLQKTVKKLP QLNVPVQKLT QLKSPVKTLS QLKAPVKTLS ********	GGNKRKLSTA AGIKRKLCFA AGITRKLCFV EGIKRKLCFV ************************************	LSMLGNPQIT LSLLGNSPVL LSILGNPSVV LSILGNPSVV *********
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	1454 1435 1400	LLDEPSTGMD LLDEPSTGMD LLDEPSTGMD *************	PKAKQHMWRA PTGQQQMWQA PEGQQQMWQA PEGQQQMWQV ************************************	IRTAFKNRKR IQAVVKNTER IRATFRNTER IRATFRNTER *********	-VVLTSHSME AAILTTHYME GVLLTTHNLA GALLTTHYMA ********* **************************	EAEAVCDRVA EAEALCDRVA EAEAVCDRVA EAEAVCDRVA *********
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	1504 1485 1450	IMVSGQLRCI IMVSGRLRCI IMVSGRLRCI IMVSGRLRCI	GTVQHLKSKF GSIQHLKNKL GSIQHLKSKF GSIQHLKSKF	GKGYFLEIKL GKDYILELKV GKDYLLEMKV GKDYLLEMKL	agSNPDLK kdwiENLEVD KETSQVT KNLAQVE KNLAQME	PVQDFFGLAF RLQREIQYIF LVHTEILKLF PLHAEILRLF PLHAEILRLF
		********* ****	********* ******** ******	******** ***		****
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	1554 1532 1497	PNASRQESFS PQAAGQERYS PQAARQERYS PQAAQQERFS	SILAYKIPKE SLLTYKLPVA SLMVYKLPVE SLMVYKLPVE	DVQsLSQSFF DVYPLSQTFH DVQPLAQAFF DVRPLSQAFF	KLEEAKHAFA KLEAVKHNFN KLEKVKQSFD KLEIVKQSFD	IEDYSVSQTT IEEYSFSQAT LEEYSLSQCT LEEYSLSQST LEEYSLSQST
		********** *****	********** *****	******** ****	******	********* ********* *******
ABC-A-1-1. ABC-A-5-2. ABC-A-6-3. ABC-A-8-1. ABC-A-9-3.	1604 1582 1547	LEQVFVELTK LEKVFLELSK LEQVFLELSK LEQVFLELSK	EQEEEDNSC9 EQEVGNFDEE EQELGDFEED EQELGDLEED	tlnstlwwer IDTTMRWKLI FDPSVKWKLI FDPSVKWKLI	dvavltsflq tqedrvvf Phsdep PQEEP	

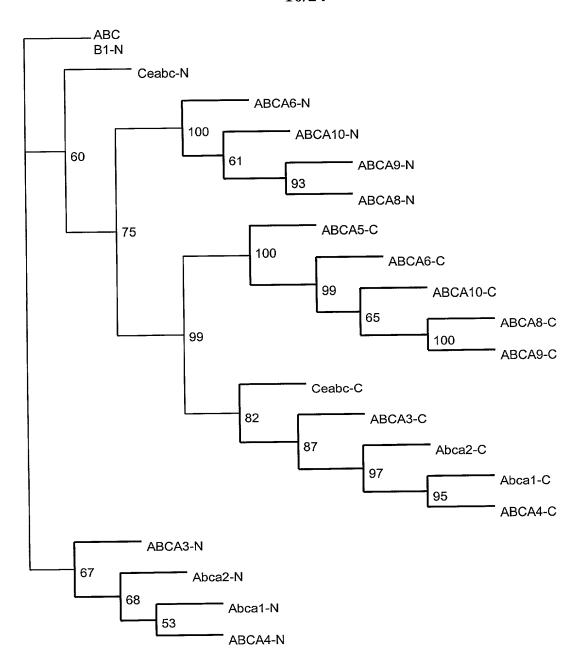


Figure 3

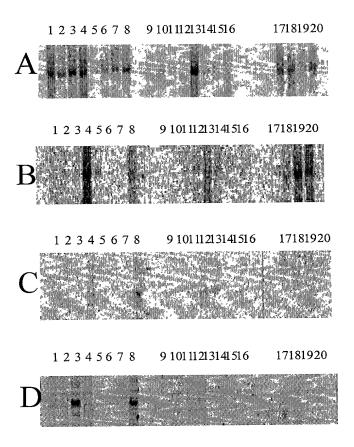
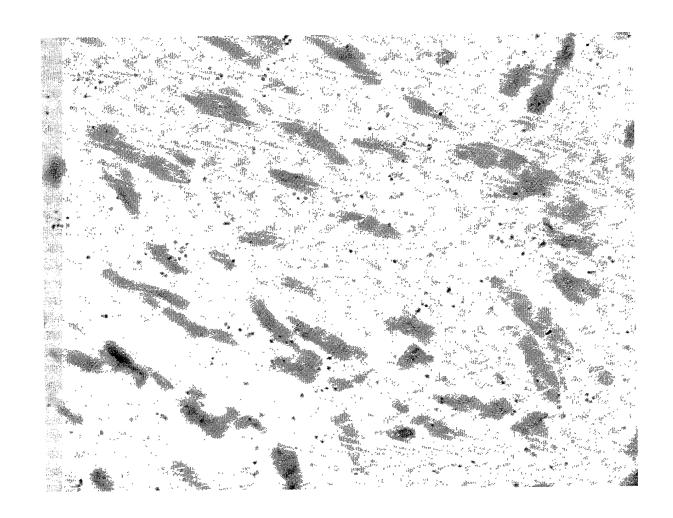
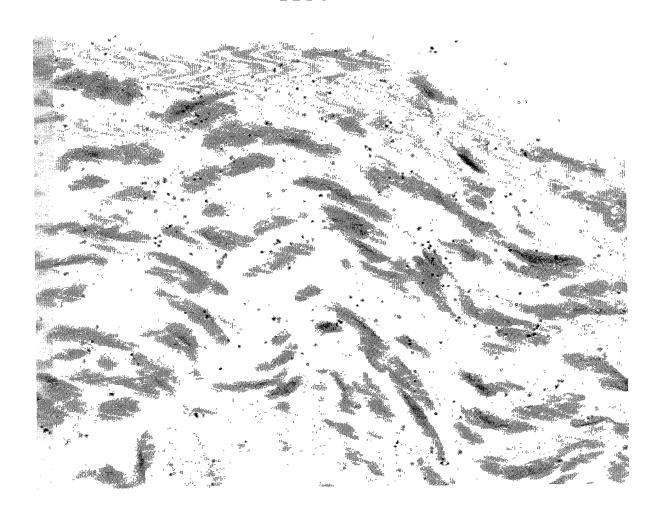
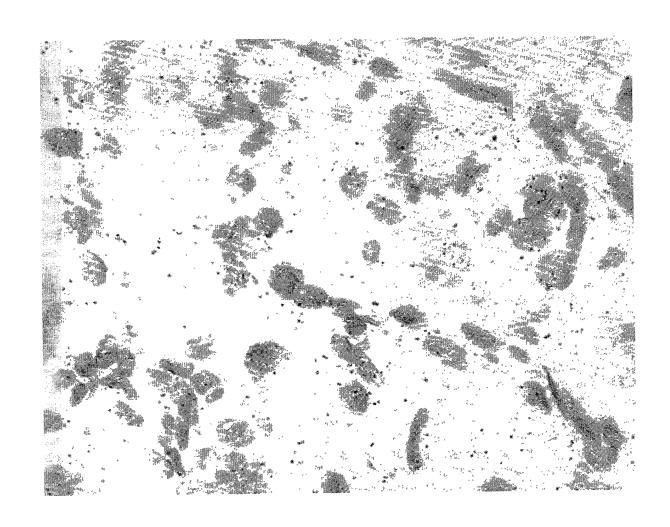


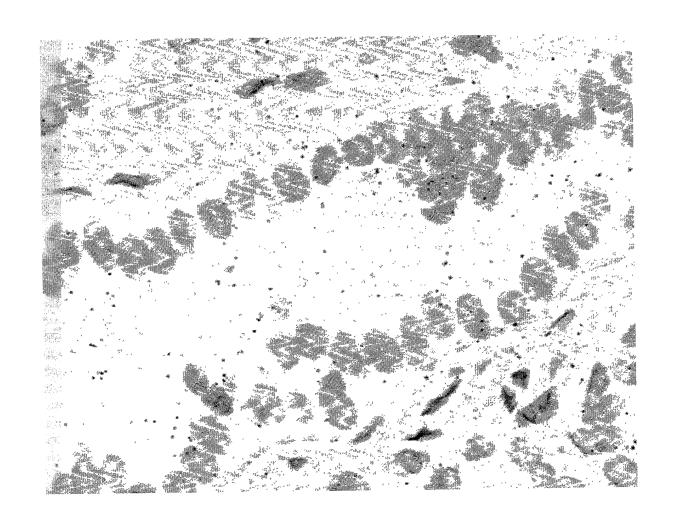
Figure 4

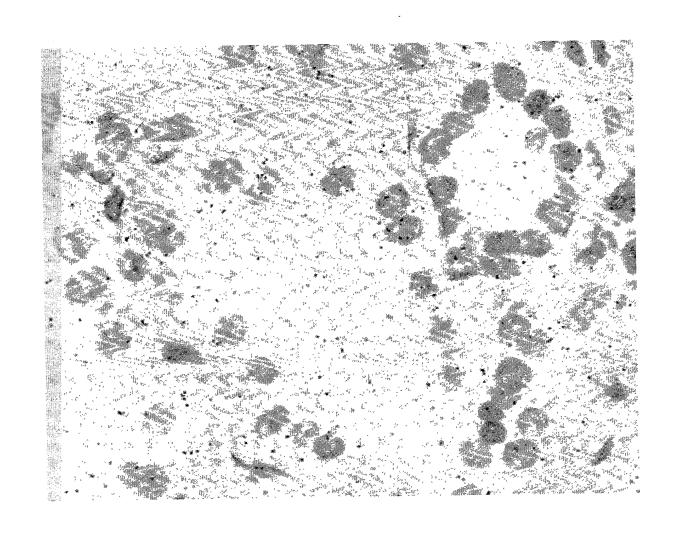




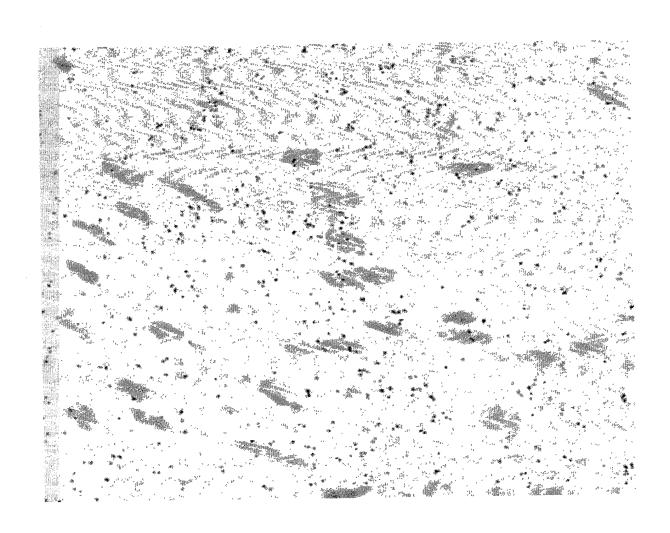
14/24 FIGURE 7



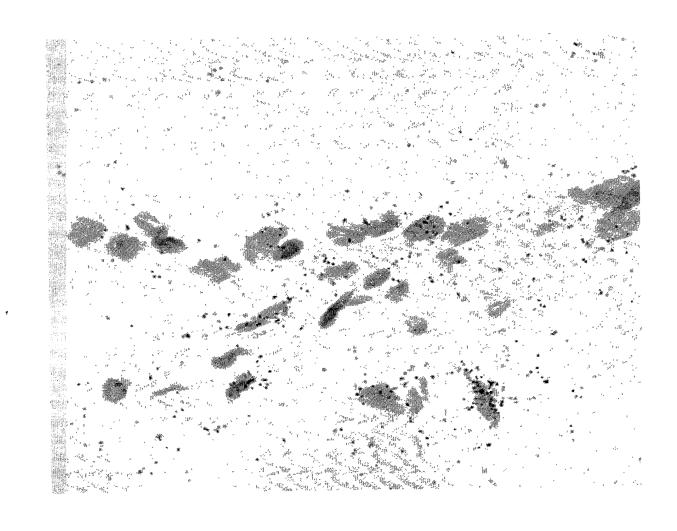


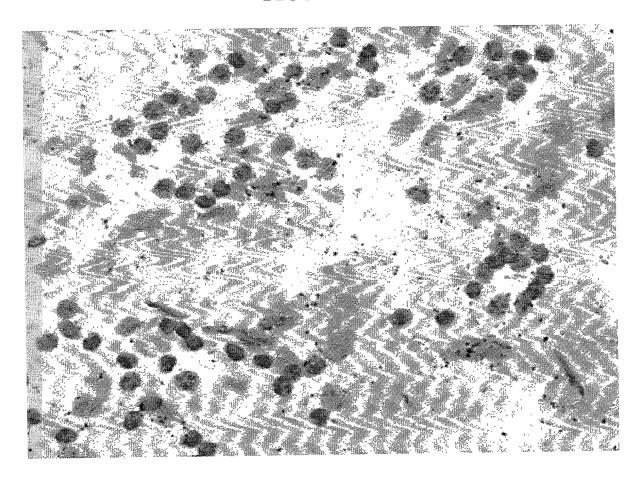


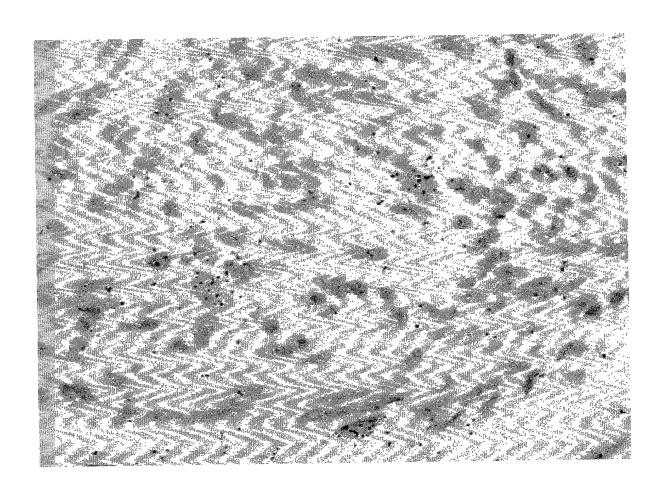
17/24
FIGURE 10

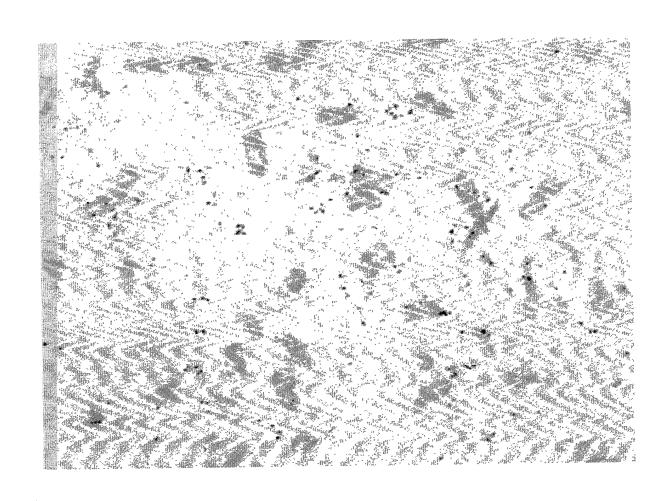


18/24 FIGURE 11









22/24 FIGURE 15

